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I - CONTROL AND TREATMENT OF SCABIES

The following material on the control and Treatment of Scabies is extracted from WD Memorandum No. 40-46, 9 January 1946:

1. Repatriation of troops from Europe has resulted in an increasing incidence of scabies in reception centers, separation centers, and other stations in this country. It can be assumed that the majority of these cases were either acquired in Europe prior to embarkation or in the crowded transports during the voyage home. In order to prevent further dissemination in the Army or among the civilian population it is necessary that everyone concerned should carry out adequate therapy and control once the cases are detected. For the guidance of those concerned with this problem there is set forth here information relative to control and therapy procedures.

2. Transmission. a. In a majority of cases scabies is transmitted through bodily contact. Crowded barrack, transports, and trains favor the transmission, especially at such times when environmental temperature favours the migration of the scabies mite. Contact with prostitutes and "pick-ups" is one important source of contagion.

b. There has been excessive emphasis placed on the importance of clothing and bedding as transmitting agents. This may be due to the false assumption that the habits and movements of the scabies mite is similar to the body louse. However, it should be realized that while the body louse lives in the clothing, and feeds on the body, the itch mite resides on and beneath the skin of the host and infestation of clothing and bedding are accidental. Careful investigation by several authorities shows that only

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one to three percent of the patients are infested by these means.

3. Incubation. The period from infestation to the presentation of clinical signs varies considerably. While many cases show clinical evidence between 7 and 21 days, there are instances where 6 or more weeks may elapse between infestation and development of generalized scabies.

4. Effect of Temperature and moisture. The itch mite is readily affected by the temperature of the environment. If exposed to any temperature above 120° F it is killed within 5 minutes regardless of the relative humidity. At temperatures lower than this, mites may survive for several days away from the host, the maximum period being 14 days under ideal conditions of 55° F and 90 percent relative humidity.

5. Diagnosis. There should be no difficulty in recognizing the typical case. It should be remembered that excoriation, crusting, and pyogenic infection tend to obscure the primary lesions. The diagnosis is sometimes difficult in individuals of good hygiene- the lesion may consist only of scattered urticarial papules. It is best to err on the side of treating all suspected cases. Many cases of scabies may obscure those of primary or ~~secondary~~ secondary syphilis, the possibility of coincident syphilis should be suspected.

6. Treatment. The simplest and most effective method of treating scabies is as follows:

a. Medication. nBenzyl Benzoate Concentrate Emulsion, Medical Department Item No. 1100100.

b. Directions for use.

- (1) This material is supplied in a concentrated emulsion form. Dilute by mixing 1 pint of concentrated emulsion thoroughly with an equal volume of water, then add 2 pints of water and shake well. This produces an approximate 23 percent emulsion. Experience has shown that there is no increased therapeutic effect with higher concentrations and furthermore higher concentrations of benzoate result in increase of sensitization reactions.
- (2) Have the patient take a thorough hot Bath (6 to 10 minutes) with scrubbing of entire body surface. Dry thoroughly. Inadequacy of this step causes most of the treatment failures and its importance cannot be overemphasized.
- (3) Apply the liquid benzyl Benzoate 23 percent emulsion preparation with a paint brush or with an insecticide gun. A large cotton swab held by an instrument (such as a Kelly hemostat) as in preparing the skin for

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surgical procedures, may also be used if paint brushes and/or insecticide guns are not available. Cover all parts of the body from the neck down. The application should be made carefully by an attendant. Allow the emulsion to dry and within 10 to 15 minutes paint on a second application. Allow to dry and patient may put on clothes. The patient is instructed to refrain from bathing and to wear the same clothes during the entire treatment.

- (4) Twenty-four hours later, the application of the benzyl benzoate is repeated exactly as outlined in (3) above. Again the patient is instructed to refrain from bathing.
- (5) Twenty-four hours later, the patient is instructed to bathe. Issue clean clothes or sterilize clothes as described below.
- (6) It is necessary to make provisions for reapplication of the benzyl benzoate emulsion each time after the patient washes his hands during the 48 hour period of treatment. One method of accomplishing this is to supply him with a small bottle of the preparation which can be returned on completion of his treatment.

c. Attendants should be instructed carefully and they in turn should supervise every step of the treatment in each patient. If this is not done, some patients will bathe inadequately and will fail to make a complete application of the medication.

d. All patients with scabies should be treated as out-patients except those having complications of severe secondary pyogenic infection and/or irritation caused by previous treatment who should be hospitalized. In separation centers and in other installations where it is necessary to treat more than a few cases daily, these patients should be segregated in a separate barracks building under the continuous observation of a medical officer and trained attendants. In uncomplicated cases it is not anticipated that scabies will cause a delay in separation of more than 72 hours.

- e. (1) If the above directions are carried out implicitly, more than 95 percent of patients will be cured. A relapse is the result of incomplete cure and when possible patients should be examined for evidence of recurrence at the end of two weeks. When the individual is to be transferred to another station immediately after completion of treatment or is being separated from the service, it is particularly necessary to warn him that a relapse may occur and that he should report to a physician immediately if there is recurrence of symptoms.
- (2) In diagnosing a relapse, it is important to remember that

frequently the primary lesions remain visible and irritant up to 7 to 10 days after treatment. Patients who have had irritation because of the treatment or who have persistence of itching because of habit will improve gradually over a period of 2 to 10 days; patient who have an incomplete cure will, in most cases, have recurrence of symptoms within 1 to 2 weeks after completion of treatment and they will increase rather than decrease.

(3) Persistence of symptoms and signs following adequate treatment are due to varying degrees of irritation incident to the treatment. In these cases, mild anti-pruritic lotions such as calamine lotion should be prescribed. Under no circumstances should the benzyl benzoate be continued more than two days and when a relapse is diagnosed, retreatment with Benzyl Benzoate should not be done until at least 10 days have elapsed after the first treatment.

f. Individuals who have had inadequate treatment prior to departure from overseas or in transit should be re-treated on arrival at separation centers or reception stations. In many instances, it may not be possible to carry out thoroughly adequate treatment at oversea embarkation points and in transit.

g. Ten percent sulphur ointment may be used as antiseborrhetic treatment only when the benzyl benzoate emulsion is not available.

- (1) Have the patient take a thorough bath.
- (2) Have the patient rub in thoroughly 10 percent Sulphur ointment to all parts of the body from the neck down using about 2 to 3 ounces. Patients may assist each other in treating the back.
- (3) One application daily at bedtime for 3 days. The efficacy of the ointment is increased if the skin is kept warm.
- (4) Have the patient take a thorough bath at the end of the 3 days of treatment. Issue clean clothes.

7. Disinfection of Clothing and Bedding. While clothing and bedding are of secondary importance as agents of transmission, they must nevertheless be adequately disinfected. The measures used depend upon the available facilities.

a. Where conditions permit, the laundering or dry cleaning of the garments and blankets is adequate for disinfection.

b. Laundry facilities frequently are not sufficient to allow the soldier to be issued clean clothes following treatment nor can the blankets be processed in sufficient time to meet the demand. In such instances methyl bromide fumigation is a rapid and effective means of disinfection. The procedures of methyl bromide fumigation should be those as described in TR Med 184.

c. The older means of disinfection by steam is adequate although it has a disadvantage of shrinking woolen goods and should not be resorted to unless other means are not available.

d. It is safe to assume that clothing or blankets aired in a room at 80° F for the period of 2 days are free of the parasite.

### SECTION II - CONTROL AND TREATMENT OF PYODERMA.

1. Pyoderma occurs either as a primary infection commonly on the bearded region of the face or other hairy portions of the body. Under this category is included the diagnoses of impetigo, pustular folliculitis, sycosis barbae. Secondary pyoderma is due to infection superimposed upon a dermatitis commonly from scabetic therapy. The danger from pyoderma lies in the secondary cellulitis and lymphangitis.

2. Therapy in simple uncomplicated cases consists in the application of warm boric acid compresses or soaks for half an hour at least twice daily. Following at least one of the soaks and compresses the thick softened crusts should be removed mechanically. Five percent sulphadiazine ointment should be applied liberally after each of the compresses or soaks. If at the end of one week the lesions still persist or if sulphadiazine ointment is not available originally, then an ammoniated mercury ointment should be used. The strength of this ointment can be from 3% to 5%. The sulfa drugs are not indicated for oral therapy unless there is indication of cellulitis or lymphangitis. Penicillin therapy is ordinarily not necessary. The commonest organism involved is a staphylococcus which is not sensitive to this agent.

3. The use of the dyes, such as gentian violet, metaphen or merthiolate, solutions of silver nitrate or Bifields ointment, are not indicated in the routine treatment of pyoderma.

### SECTION III - CONTROL AND TREATMENT OF DERMATOPHYTOSIS

1. Severe dermatophytosis is infrequently seen in this theater. When present it is usually secondary to infrequent washing of feet with soap and water, or excessive perspiration. Excessive interdigital maceration and/or vesiculation of toes or soles are the commonest manifestations. Hypertrophic, lichenified and scaly plaques are more rarely encountered. Tustulation is not an integral component of dermatophytosis;

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when seen it is indicative of secondary pyoderma, and should be managed as such. If neglected, swelling of the toes, secondary cellulitis and at times lymphangitis frequently supervene, and hospitalization becomes necessary.

2. Treatment of uncomplicated dermatophytoses. The macerated type may be treated with an ointment containing 5% ammoniated mercury and 2% salicylic acid at night and a bland dusting powder by day. Two percent aqueous solution of gentian violet may be substituted for the ammoniated mercury. Two percent salicylated alcohol is useful to ensure permanency of results. Acute vesicular dermatophytosis should be treated as dermatitis with boric acid or permanganate soaks. A soothing zinc oxide ointment or Lassar's paste is then applied. During convalescence a bland dusting powder may be used. The hyperkeratotic type of dermatophytosis may be treated with 5% ammoniated mercury and 2% salicylic acid ointment. If resistant, 2% to 3% tar ointment is of value.

3. All patients with chronic recurring dermatophytosis should be given instructions regarding foot cleanliness, with daily soap and water washing, the use of foot powder, and cotton socks. Whitfield's ointment is not recommended as a routine treatment for any form of dermatophytosis, except as specifically prescribed by a dermatologist.

SECTION IV - DIAGNOSIS AND TREATMENT OF DERMATOPHYTE

1. When dermatophytosis of the feet is complicated by vesication of the fingers or hands, a diagnosis of dermatophytosis may be made. This should be treated not as a dermatophytosis, but as an acute dermatitis, using continuous boric acid compresses followed by zinc oxide ointment when mild and subacute. Secondary infection should be managed as above outlined.

SECTION V - TREATMENT OF TINEA CRURIS

1. Tinea Cruris may be controlled by the use of potassium permanganate soaks, followed by 5% ammoniated mercury and 2% salicylic acid ointment, or by the following ointment:

Sulphur PPT	0.5 %
Sol. Coal tar	0.2 %
Salicylic acid	2.0 %
Lanolin	10.0 %
Benzoinated lard	q.s

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